

## ENHANCING PUBLIC VALUE OF LOCAL PUBLIC SERVICES THROUGH ELECTRONIC INTERACTION

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Benefits from introducing electronic public services have been widely discussed in the academic literature. However, in recent years, research advocates a more broad approach integrating multiple indicators of social benefits. One of these approaches is associated with the concept of public value, which describes the overall value that the government creates for the society. In this research we theoretically illustrate and empirically evaluate the possibility to enhance public value of public services through the electronic interaction of citizens and authorities on a local (municipal) level. We use an example of online claim submission system on landscaping and public amenities issues. The paper is based on a survey among 150 elderly citizens of a district of St. Petersburg (Russia). Despite the fact that elderly citizens are actually willing to adopt the electronic way of communication with local authorities and even associate it with a higher level of comfort and transparency, the online interaction itself do not make them trust the authorities more or submit their claims more often. To increase the level of trust and enhance the actual public value, the authorities need to demonstrate some practical results of their activity. This paper elaborates the linkage between public value creation and public e-services implementation on a local level. We provide a theoretical framework for a more comprehensive understanding of public value enhancement through local public services.

**Keywords:** public e-services, public value, landscaping and public amenities, principal components analysis.

**JEL:** H110, H410, H70.

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## Introduction

Electronic public services (or public e-services) development is the trend of recent decades. Informational and transactional e-services modify citizens' interaction with public authorities in various spheres — from obtaining information to participation in voting. This provides broad advantages for the government, individual users, and the society at large, such as reducing transaction costs, improvement of public service quality and increase of public trust in the government (see, for example, [OECD Public..., 2017]).

The questions of digitization of the economy have been under close attention of the Russian authorities as well. Advancing the level of digitization of the Russian economy is associated with increased transparency, faster operation, less corruption, etc. Illustrating that, during the Gaidar Forum in January, 2019, German Gref, the head of Sberbank, strongly suggested using digitization as the only means to fight corruption in Russia [Tellerreport, 2019].

In this research, we adopt Rowley's approach who defines e-services as "deeds, efforts or performances whose delivery is mediated by information technology" [Rowley, 2006]. From this perspective, a public e-service is an electronic service provided by a government or other state organizations.

Benefits from public e-services implementation have been widely discussed in the academic literature (see, for example, [E-Government Benefits Study, 2003; Gilbert, Balestrini, Littleboy, 2004]). However, in recent years, research advocates a more broad approach integrating multiple indicators of social benefits. One of these approaches is associated with the concept of public value, which was formulated in the 1990s. Public value describes the overall value that a government provides to the society. Public value and values of the society

are interrelated, therefore, public value is a cumulative representation of public understanding of what they consider valuable [Talbot, 2011].

In this research *we theoretically illustrate and empirically evaluate the possibility to enhance public value of public services through electronic interaction of citizens and authorities on a local (municipal) level*. We use an example of online claim submission system on landscaping and public amenities issues. The paper is based on a survey among 150 elderly citizens of one district of St. Petersburg (Russia).

In general, there are three main areas in which public authorities create or enhance public value, namely: public services efficiency (efficiency of outputs), public services outcomes and public trust [Moore, 1995]. We argue that on the local (municipal) level the influence of these components on public value of a public service can be most reliably identified and verified.

First, public preferences for local public services can be clearly and reliably identified on the local level. Second, local public service quality (and its potential enhancement due to a transition to the electronic format) can be more comprehensively assessed by citizens. Third, the results of the activities of the local administration are fairly easily measurable (in comparison with higher authorities' work). Fourth, the overall quality of interaction and, as a consequence, the general level of public trust is as fully liable as possible on the local level.

It is important to emphasize that on the local level the quality (outputs) of public services and their results (outcomes) are closely related to feedback from the local population. This means much greater potential involvement of the local population to the process of a public service provision. Such greater involvement improves the quality of outputs and makes possible to achieve better outcomes of a public service, which all together increase the trust in authorities,

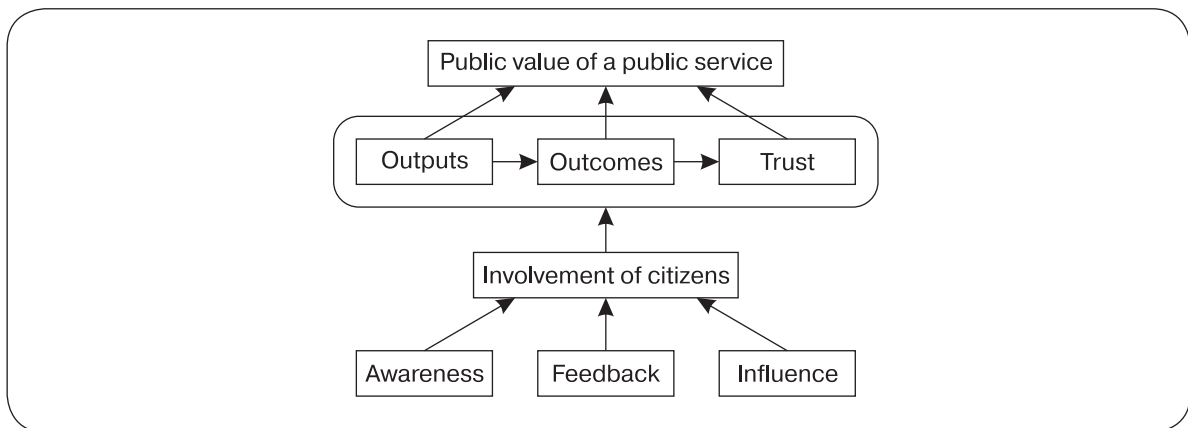


Fig. 1. Components of public value of a public service

Based on: [Moore, 1995; Grimsley, Meehan, Tan, 2004].

and, as a result, the overall public value (see Fig. 1).

According to [Grimsley, Meehan, Tan, 2004], the involvement of the local population, in turn, has three levels: (1) awareness; (2) possibility of feedback provision; (3) ability to legitimately influence the process of public services provision. Additionally, the citizens' involvement intentions are based on two principal aspects — informal and formal. Informal aspect involves *local traditions* and history of interaction between citizens and authorities, as for people it is important to be asked and to be to be a part of the conversation. Formal aspect is represented by *transaction costs* (comfort, transparency, ease) of communication with authorities — the opportunity not only to submit claims, but also to control the process of claim fulfilment, in particular, by providing relevant feedback.

For enhancing the public value of a public service it is not sufficient only to work with awareness of the people of this service. It is also necessary to increase involvement of citizens, specifically, by providing better communication channels, because the way of communication may itself be of importance for citizens. Building on this argumentation, we consider the electronic format as compared to a traditional (paper) format

as a perspective way of enhancing the public value.

However, different cohorts of citizens may perceive electronic format of interaction with authorities differently. Specifically, older population traditionally has more difficulties adopting new information technologies. It is particularly important to study the problem of increasing public value of government services through the adoption of electronic interaction solutions for the older group of citizens. The elderly people have been studied before in regard to public e-services (see, for example, [Phang et al., 2006]), but most of the research was devoted to the general Internet usage and ICT adoption (see [Selwyn, 2004]; [Iyer, Eastman, 2006]).

In this study we go beyond a purely theoretical discussion of the problem and attempt to operationalize and empirically evaluate the public value enhancements by electronic services. First of all, it can be done almost only via a sociological survey of the relevant group of citizens; and second of all, if any, this has rarely been done in the literature on the topic, as this literature has almost entirely been devoted to theoretical discussions of the corresponding mechanisms (see the literature review below).

In our study we focus on the elderly citizens and on a concrete local public service. Specifically, we chose a local public service of filing claims on landscaping and public amenities issues. This sphere is one of the most significant among the local issues in terms of both public attention and the amount of public financial expenditures, with complaints on the quality of landscaping and public amenities being among the most frequently discussed topics.

As the most socially active public services customers, the elderly citizens (citizens of retirement age) were chosen for the research. Usually, they are well aware of topical local problems and more actively than other categories of the population interact with a local administration.

The rest of the paper is organized as follows. Section 1 presents the theoretical framework of the public value and conceptualized sources of public value creation. Section 2 discusses the issues of an impact of e-services on the public value creation. Section 3 describes the methodology of this research. Section 4 provides and discusses the empirical analysis results. Finally, Section 5 summarizes the main conclusions and implications of the research.

## 1. THE PUBLIC VALUE FRAMEWORK

The era of the new public management movement was characterized by attempts to quantify the effectiveness and efficiency of public administration with the help of measurable indicators. Such a narrow approach to evaluation was widely criticized in the 1990s. It has been obvious that interaction between the state and the society is not limited to provision of public services, and there are many other criteria that characterize governance quality. For instance, under increasing importance of democratic values, government open-

ness, transparency and accountability, which are difficult to assess objectively, should also be taken into account. Criticism of the performance-based assessment systems has led to a wider approach, capturing the difference between outputs and outcomes in the public sector and specifying a broader range of governance results and benefits on both individual and collective levels (see [Walker, 2009]). In contrast with the new public management, the public value concept takes a broader view on what matters and what works for the society without diminishing the value of performance measures (see [Moore, 1995; Benington, 2011]).

Generally speaking, *public value* describes the value that the government contributes to the society. It is an equivalent of the shareholder value in public management (see [Moore, 1995]). Therefore, taken from citizens' individual and collective experience of interaction with the government, public value represents the evaluation of how needs and preferences of the society are met and satisfied. Consequently, the value of any public sector organization or public administration in general should be measured primarily by the extent to which their activities are focused on maximizing public value. Therefore, public value characterizes administration's strength, significance and ability to produce socially desirable results. In this regard, results of any reforms in the public sector should be evaluated through the lens of changes in the ability to produce public value.

Public value emerges from a broad and inclusive dialogue and deliberation between government and society. Most researchers put public value as a theory of networked and collaborative community governance or new public governance, where citizens are considered as problem solvers and co-creators, helping the government to produce what is really valued [Osborne, 2010; Benington, 2011; McGinnis, Ostrom, 2012].

The citizens do not necessarily behave as customers because they do not only value what they consume. They have vision, goals and aspiration for the society as a whole. Citizens also share collective values, they care about fairness, equality, environment, etc. (see [Cordella, Bonina, 2012]). Therefore the government needs to ensure effective communication and processing of public values as well as provide sufficient transparency to permit citizens to make informed judgments [Kalambokidis, 2014].

The focus on public value stimulates attention to the long-term viability and reliability of public investments [Fisher, 2014]. In this regard, the public value concept refreshes the perspective on the role of the state [Benington, 2011]. It puts the priority on improving governance and enhancing the democratic process and uses them as the main criteria in judging public investments (see, for example, [Chappell, Knell, 2012]).

In the modern academic research, the concept of public value is widely used for analysis and evaluation of government activities in general, as well as public sector organizations in particular (in healthcare, education, housing and communal services, transportation, etc.). It also became a methodological basis for developing new quality standards of public services delivery (see, for example, [NZIER, 2004; Scottish Government, 2006]). Nowadays, the concept can be considered as an inclusive framework for evaluating the effectiveness and efficiency of public services.

Scholars identify three main sources of public value creation [Moore, 1995; Kelly, Mulgan, Muers, 2002]:

- 1) public services efficiency;
- 2) public services outcomes;
- 3) public trust.

1. *Public services efficiency.* Public services are one of the key sources of public value produced by public administration. Kearns specified five principal factors that influence the perception of public services

value by citizens: availability, customer satisfaction, perceived importance, fairness in provision, and the costs of obtaining them [Kearns, 2004].

In accordance with the Accenture Public sector value model (see [Jupp, Younger, 2004]), government agencies maximize public services value in two dimensions (see Fig. 2). First, service delivery should be optimized in terms of cost-effectiveness. The lower is the cost of the output corresponding to the specified (or legally established) quality standards, the higher is the value of public services. The second dimension of public services value is related to external evaluation of their quality and reflects the customer's view on the process and on the results of this process.

Qualitative characteristics of service efficiency cannot be measured in monetary terms, but they have a direct impact on the perceived quality of the service and on the degree of customer satisfaction. They include perceived quality of the service, number of possible channels of public service delivery, availability, completeness and accuracy of information about the service, transparency of the process, complexity of the service (number of organizations involved), customer support, etc.

The efforts of public administration to increase the level of citizens' satisfaction should be based on clear understanding of the relative importance (or value) of various service characteristics, affecting this satisfaction.

2. *Public services outcomes.* The performance of a public administration is assessed not only by the experience of individual citizens, but also by its ability to provide a number of socially desirable and significant outcomes. These results are derived from the objectives of the public policy in certain functional areas.

Public service outcomes are more likely to have the characteristics of pure public goods: results in areas such as law and order,

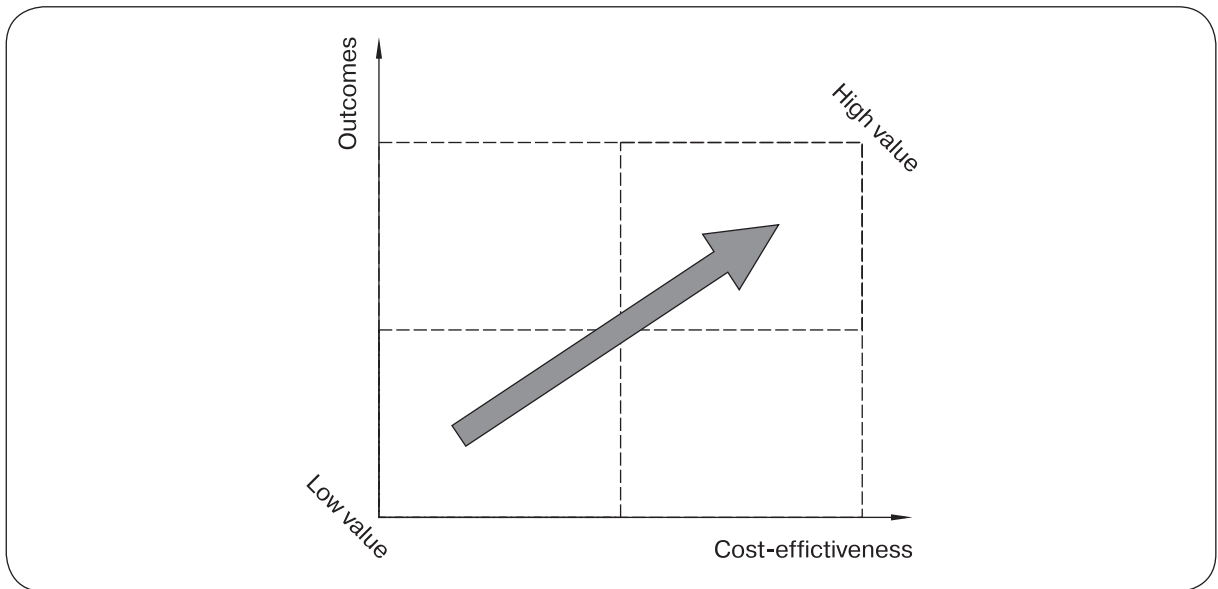


Fig. 2. Public services value model

Based on: [Jupp, Younger, 2004].

health, social security, environmental improvement, expansion of educational services are consumed by the society collectively. Obviously, these outcomes are much more difficult to evaluate in terms of public value. The reason is not only the collective nature of consumption but also the problem of “many hands”, i.e. many public sector organizations take part in production of the certain outcome. Anyway achieving better results in line with the values adopted by society should be associated with a higher level of public value produced by the public administration.

**3. Public trust.** Trust makes it possible to achieve community goals that would not be achievable in its absence (see [Coleman, 1990; Fukuyama, 1995]). Illustrating that, research show that the level of trust positively correlates with social stability, implying economic, social and psychological well-being of the society (see [Green, Grimsley, Stafford, 2005]).

Trust in government institutions can be considered as an example of results of public administration activity. However, other

results perform primarily a service function, while trust is a consequence of the collective experience of citizens (see [Grimsley, Meehan, Tan, 2004]).

[Grimsley, Meehan, 2007] showed existence of a positive correlation between the degree of satisfaction with public services and trust in public administration. In addition, the study found that trust and satisfaction with public services largely depend on how the experience of interaction with public authorities affects the citizens' perception of their own awareness, possibility of personal control and impact on the processes. Therefore government can enhance public value through increasing public trust using such levers as openness, transparency, accountability, responsiveness.

## 2. THE IMPACT OF E-GOVERNMENT ON PUBLIC VALUE CREATION

Discussion of public e-services involves a broader term — “e-government”. In the academic literature, e-government is defined



as a way for governments to use the most innovative information and communication technologies, particularly web-based Internet applications, to provide citizens and businesses with more convenient access to government information and services, in order to improve the quality of the services and to provide greater opportunities to participate in democratic institutions and processes (see [Fang, 2002]).

E-government is seen as an instrument to achieve broad objectives of improving governance quality, such as government effectiveness, public services quality, greater government openness, and so on. Obviously, being a public project, the evaluation of IT investments into government-society interaction should imply broad benefits and results of this transformation. For this reason, scholars call for using the public value paradigm to study broader outcomes of e-services (see [Chatfield, AlHujran, 2007; Hui, Hayllar, 2010; Karunasena, 2012; Sivaji et al., 2014]).

For the first time this approach was proposed by [Kearns, 2004]. Since the primary goal of ICT use is to improve governance, e-government can be considered as means of enhancing public value [Castelnovo, Simonetta, 2008].

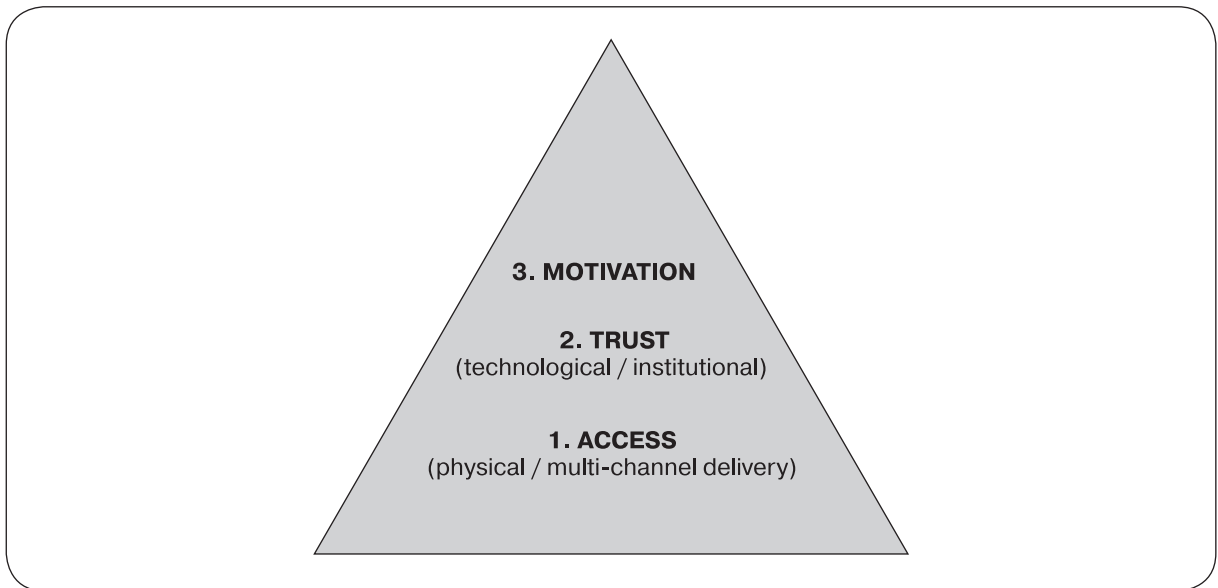
Improving *quality and efficiency of public services* through their transfer to the electronic format has been widely discussed in the academic literature and is proved by numerous empirical studies (see [OECD e-Government Studies, 2010; Zaidi, Qteishat, 2012; Zemblyte, 2015]). This is achieved through process simplification, multi-channel service delivery, overall speed and convenience improvement. Public service customers get an opportunity to receive the service at any time and in any convenient place, which in turn increases their satisfaction with the service and overall trust in public authorities.

E-government development strategy provides a whole range of effects on the *out-*

*comes of government policies* in various functional areas. The mechanisms of positive changes include reduction of administrative barriers, raising awareness of the population, reducing corruption through greater transparency of processes. The contribution of e-government to achievement of greater results at the same cost levels becomes possible because of different synergistic effects due to the change in the format and quality of interaction between the state and the society. Many studies confirm positive effects of e-government on economy, poverty, health, education, community and social services, etc. (see [Harris, 2009; Bhatnagar, Singh, 2010]).

*Public trust* is a result of cognitive attitude about the work of a government. Thus, the level of individual trust can depend not only on the actual quality of government work, but also on the interpretation of information about government activities by the individuals. In this regard, the level of information openness (transparency), intensity and quality of information exchange affect the degree of public trust (see [Mutz, Flemming, 1999; Dawes, Helbig, 2010]). The spread of information technologies in the society and the overall increase in the flow of the government information along with e-participation development can play a significant role in overcoming information gaps between the state and the society, thus, correcting public perception of the government activities and increasing government responsiveness and public trust.

Importantly, an implementation of e-government services alone is not capable of increasing public value; it only creates/enhances the *potential* for its production. The positive effects of e-government directly depend on the level of public e-services adoption by public services customers. The main factors according to [Golubeva, Gilenko, 2017] include access, trust in the electronic way of interaction and perceived benefits and the motivation to use electronic services.



*Fig. 3.* Hierarchical model of public e-services adoption

Based on: [Golubeva, Gilenko, 2017].

*Access* to e-government services is determined by three main components: access to the new ICT and tools (availability of Internet access, computer, smartphone, etc.), availability of the necessary ICT skills, and customer awareness of the existence of electronic (public) services.

*Trust* in new technologies is based, as a rule, on the previous experience of the user. In addition, the overall level of trust in the government is positively related to the trust in innovations offered in the public sector (see [Fledderus, Brandsen, Honingh, 2014]).

Individual assessment of the benefits from e-services use (*motivation*) depends on many factors. They include expectations regarding the quality of services in the electronic format in comparison with the traditional format, the user's initial experience in accessing electronic services and their actual quality (see Fig. 3).

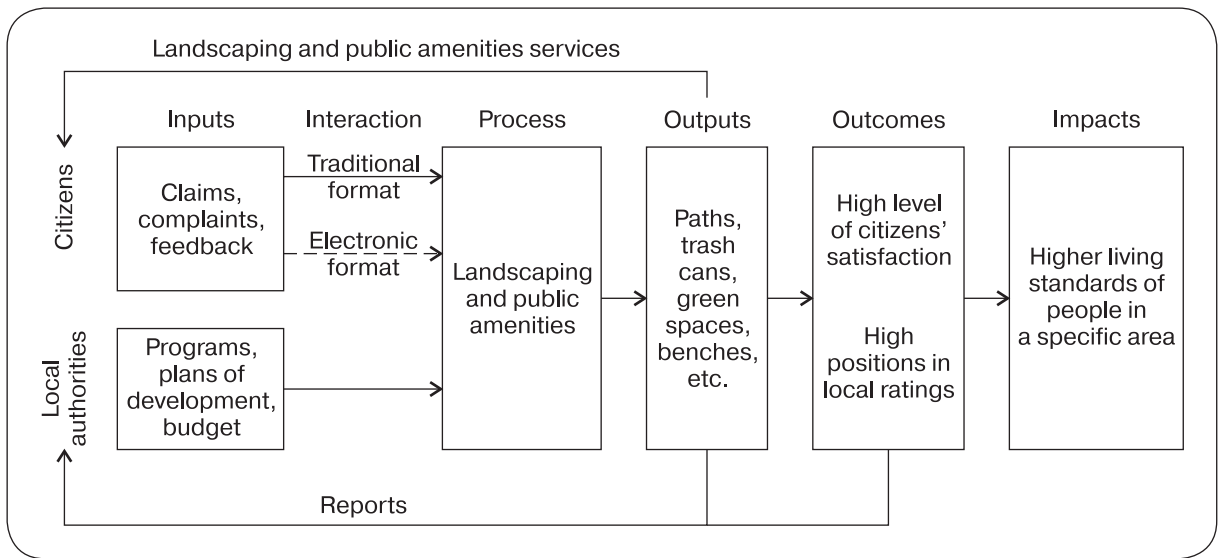
In general, the higher is the positive effect of public value production, the greater the number of customers who become loyal (regular) users of public e-services.

Creation of public value is a multidimensional problem [Cordella, 2007]. This fact represents the most challenging obstacle for researchers and practitioners when making attempts to develop a more operationalized approaches for e-government assessment based on the public value concept. Nevertheless, a high failure rate of e-government projects worldwide, especially in the least developed countries (LDCs), increased the attention to the public value concept as a methodological framework for assessing public ICT investments and a means for increasing of credibility and trust to e-government.

[Cresswell et al., 2006; Heeks, 2006] proposed a set of indicators to measure the impact of ICTs on public value creation. They assume that ICTs deliver benefits directly to citizens and enhance the value of government itself as a public asset.

[Twizeyimana, Andersson, 2019] emphasize the relationship between the “value creation” and “success” of e-government projects. In their research they made a general review of the previous research





*Fig. 4. Enhancement of the public value of landscaping and public amenities services*

Based on: authors' analysis.

results and described the major potential impacts of e-Administration, e-Services, e-Citizens and e-Society development on public value.

[Scott et al., 2016] discussed that the success of e-government systems depends on how citizens perceive the value realized from using those systems. Citizen-perceived net benefits evaluation of a specific G2C systems are also have been investigated by [Wang, Liao, 2008].

Most of the existing approaches to e-government assessment, based on the public value concept, distinguish outcomes, public services and public trust as basic elements for public value creation (see, for example, [Grimsley, Meehan, Gupta, 2006; Heeks, 2006; Golubeva, 2007; Bai, 2013]). They usually analyze and test impacts of e-government on the basic elements of public value.

But despite of all mentioned, there is still a research gap in using more practical and focused approaches to evaluation of the potential of the electronic format of interaction to enhance public value of a particular public service. Thus, the current study

contributes to the literature by addressing this gap with use of a quantitative analysis. Our task is to demonstrate the mechanism of the impact of electronic communication between citizens and authorities on such sources of public value as service quality and trust.

### 3. RESEARCH METHODOLOGY

This research is based on a pilot study examining how the electronic format of claims submission is able to enhance the public (perceived) value of public services on landscaping and public amenities. In this study we conducted individual survey among the citizens of one district of St.Petersburg, Russia. The target group of people were citizens of the retirement age. As it was mentioned above, traditionally (specifically, in Russia) this category of citizens is the most socially active when it concerns the questions of quality of local landscaping and public amenities.

Fig. 4 presents a guiding scheme for this research demonstrating the public value

creation process of landscaping and public amenities services.

The scheme represents the two sides interested in the provision of the public services — citizens and local authorities. As inputs, citizens provide their claims, complaints, and feedback on the situation with district landscaping. For local authorities, such inputs are different programs and plans of development of the territory that they are in charge of. As a result of the process, new green spaces, benches, trash cans, roads and other facilities occur in the area. If this happens regularly and effectively, on the one hand, the level of local citizens' satisfaction becomes higher, and, on the other hand, the local authorities improve their positions in the city's administration ratings. Ultimately, there occur higher living standards for the people of the area.

Solid arrows in Fig. 4 represent the traditional way the process goes. As is stated in the goal of this research, we aim to illustrate whether the public value of the studied local public services is enhanced by introduction of the electronic way of communication of citizens with the district administration (presented by the dashed arrow in the figure). This means that if the introduction of the electronic format of claim submission alleviates the process of communication of the citizens with the administration, then ultimately we should expect the public value of the studied public services provision to increase.

## Data collection

Since the purpose of this research is to illustrate how to apply the public value concept to analysis of expected (potential) benefits (outcomes) of implementation of the electronic interaction of local authorities with citizens (consumers of public services) for a specific case of public services (landscaping and public amenities), we developed our own questionnaire and collected a sam-

ple of 150 responses of aged citizens of the Krasnogvardeyskiy District of St. Petersburg, Russia. The survey was conducted in person from April till July, 2018.

The questionnaire<sup>1</sup> consisted of four principal parts, covering the following aspects.

*Part 1:* socio-demographic portrait of the respondent (age, gender, education, level of income, marital status, access to the Internet, etc.).

*Part 2:* questions on the respondent's knowledge about the district's administration activity in general.

*Part 3:* general questions on the respondent's attitude towards the electronic format of interaction with the district's administration.

*Part 4:* specific questions on potential intentions of the respondent to use the electronic format in interaction with the district's administration to solve landscaping and public amenities problems.

In this paper we specifically focus on two parts of the questionnaire provided in the Table 1. The full description of the questionnaire can be provided to the reader upon request.

## Research hypotheses

In order to set the hypotheses of this research, we, first, need to examine the following issues (propositions):

1. Whether citizens actually value the public service.
2. Whether citizens expect that electronic interaction with administration will actually lower their transaction costs. This issue is related to the formal aspect of citizens' involvement.
3. Whether there will be enhancement of citizens' trust in the local authorities' activities via better public services provision (see Fig. 1).

<sup>1</sup> The complete questionnaire form is available from the authors upon an e-mail request. Here, we do not provide it for the sake of space saving.

Table

## Description of selected survey items

| Variable   | Description  | Measurement units   | Mean value |
|--|--|---|------------|
| <i>Panel A. Description of variables from Part 1</i> |  |   |            |
| Gender   | Respondent's gender  | Binary: 1 — male, 0 — female  | 0.46       |
| Age  | Respondent's age (full years)  | Integer (years)   | 60.25      |
| Educ   | Respondent's level of education  | 5-grade Likert scale (from 1 — “primary school” to 5 — “higher education”)                      | 4.37       |
| Income   | Respondent's income level  | 5-grade Likert scale (from 1 — “very low” to 5 — “very high”)                                   | 2.60       |
| Marital  | Respondent's marital status  | Binary: 2 — non-single, 1 — single)   | 1.72       |
| Children   | Whether the respondent has children  | Binary: 1 — yes, 0 — no   | 0.93       |
| Ictskills  | Respondent's level of ICT skills   | 5-grade Likert scale (from 1 — “no skills” to 5 — “IT professional”)                            | 2.51       |
| Itaccess   | Whether the respondent has access to the Internet  | 5-grade Likert scale (from 1 — “no access” to 5 — “all types of access (mobile, stationary)”) ) | 4.25       |
| <i>Panel B. Description of variables from Part 4</i> |  |   |            |
| EFuse  | Would you use the electronic format to interact with district's administration to solve landscaping and public amenities problems? | 5-grade Likert scale, from 1 being “completely disagree” to 5 being “completely agree”          | 4.02       |
| EFcomfort  | Would the electronic format make the process of claim submission more <i>simple</i> and <i>comfortable</i> to you?                 |   | 3.90       |
| EFoften  | Would the electronic format make you submit your claims to the administration more <i>often</i> ?                                  |   | 3.75       |
| EFopen   | Would the electronic format make the process of interaction with the administration more open and <i>transparent</i> ?             |   | 3.73       |
| EFtrust  | Would the electronic format increase your <i>trust</i> in administration's activity?   |   | 3.76       |

Based on the following discussions of these issues, we formulate the hypotheses of the current research.

#### *Issue 1. The value of the public service*

For the public consumers (citizens), it is necessary to determine the value of the public service at large and the value of its different quality characteristics in particular. In our case, the both aspects are important: landscaping and public amenities services provision in general, and ways and means

of citizens' communication with the local authorities in particular.

It is crucial to emphasize that the way of communication with local authorities itself is also a public service, and it was particular focus of this research. Thus, the subject of our research how the new (electronic) way of interaction between the citizens and local authorities can enhance public value of a public service (in our case, landscaping and public amenities provision).

To capture the attitudes of the respondents towards the electronic way of communication with the local authorities, we use information from Part 4 of the questionnaire. The details on the variables in this part are given in Table (Panel B). Cronbach's alpha on this is 0.92 which strongly suggests an excellent consistency of the survey.

The majority of respondents do perceive the electronic way of claim submission to the administration as an effective way to solve landscaping problems of the Krasnogvardeiskiy district. The mean value of EFuse item is above 4.0 which means that people rather would agree to use this way of communication with the administration. Further, other variables such as simplicity, comfort, and transparency, have the mean value of at least higher than 3.7, which also speaks in favor of people's appreciation of the electronic format of interaction.

From the descriptive analysis, we can preliminarily state that the electronic way of communication with the local authorities can indeed potentially increase the public value of the landscaping public service.

### *Issue 2. Public service consumers' expectations*

The potential for increasing the public value of a public service will also strongly depend on the expectations of public service consumers about the quality characteristics of the public service, specifically in the context of transferring the interaction with the local authorities to the electronic format.

In the questionnaire we also provided questions on perceived importance of the interaction with the administration. Specifically, we asked: which aspects are of most importance to the respondent when interacting with the local administration:

- speed of administration' reaction to the problem (30%);

- transparency of the interaction process (22%);
- politeness of administration's employees (21%);
- convenience of submission of a claim (26%).

Particularly, the second most important aspect of citizens' interaction with administration is the convenience of the process of claim submission. This suggests that if the way of interaction of citizens with local authorities is inconvenient, this may deteriorate the public value of the corresponding public service.

Thus, by establishing the link between convenience of the interaction process and potential readiness to use the electronic format of interaction, we could demonstrate that improvement of the electronic means of communication with citizens may increase the public value of the corresponding public service.

So, we formulate the following hypothesis:

*Hypothesis 1. Adoption of the electronic format of the citizens' interaction with the local administration will positively affect the public value of the public service by improving convenience of the interaction.*

### *Issue 3. Enhancement of citizens' trust*

As a final step, we need to consider the potential influence of the public service provision improvement on citizens' trust in local authorities' activities. Thus, we seek to establish the relationship between citizens' trust and the intensity of their interaction with the local authorities which in turn may be associated with public value enhancement.

We argue that higher level of administration's openness and transparency will increase citizens' trust in their activities, thus making people to strengthen interaction with the administration (in our case, by providing more information on the landscaping and public amenities problems). As a result, the

administration will be able to provide more outcomes to the people, thus improving the living standards of people in the area (see Fig. 4).

The respondents were asked about their opinion on whether the electronic format would be of help in making interaction with the administration more open, transparent, and clear for the citizens. The distribution of their responses has the following structure:

- 68% agreed that it would make interaction more transparent;
- 26% disagreed;
- 6% had difficulties answering this question.

Based on this preliminary data, we hypothesize:

*Hypothesis 2. Higher transparency of the citizens' interaction with the local administration will positively affect the trust of citizens in the administration's activity.*

Finally, the respondents of our survey were also asked on their opinion on whether adoption of the electronic format of interaction is able to strengthen their trust and readiness to cooperate with district's administration. The distribution of their responses was as follows:

- 63% believed that the electronic format of interaction is able to increase trust in administration's activity;
- 18% didn't believe that;
- 19% had difficulties answering this question.

Since the overall majority of respondents relate trust in the administration activity to the electronic format, we anticipate that increasing trust in public services will also increase the willingness of people to interact with using them more frequently (submit claims on landscaping and public amenities problems). The administration would also benefit from the increase of trust, since that would enable them to better analyze and plan their activities.

This allowed us to formulate the following hypothesis:

*Hypothesis 3. Increasing trust of citizens in local administration's activity will positively affect the citizens' motivation to submit their claims more actively.*

## 4. RESEARCH RESULTS

To test our hypotheses we applied the principal components analysis on the collected survey data. Preliminarily, in order to characterize the surveyed sample, we checked for the necessary pre-conditions for electronic format adoption according to our model (Fig. 3).

### Pre-conditions for electronic format adoption

Our model of public e-service adoption suggests three principal factors that influence this process: *access*, *trust* and *motivation*.

#### *Access to public services via the electronic format*

Recalling the components of access to e-government services, the descriptive analysis of our sample showed the following.

Regarding *physical access* to the Internet, the distribution of responses was as follows:

- 49% of the respondents had mobile and fixed (stationary) access to the Internet;
- 35% had only fixed (stationary) access to the Internet;
- 13% had only mobile access to the Internet;
- only 3% didn't have access to the Internet.

As for the ICT skills of the citizens, the distribution of the responses looks like this:

- 8% of the respondents didn't have ICT skills at all;
- 42% had a beginner's level in ICT;
- 44% had a level of an intermediate user (were able to use MS Office applications);



- 6% had an advanced level in ICT.

As for the citizens' awareness of the existence of an electronic service of claim submissions on landscaping and public amenities problems, the respondents provided the following answers:

- 72% of the respondents didn't know about such service;
- 28% knew about the service.

Based on these statistics, we can definitely say that for the greater majority of the surveyed elderly citizens physical access to the Internet and the necessary ICT skills were at an acceptable level. The possible problem for e-service adoption was people's unawareness of the corresponding electronic service. Overall, the results suggest that the access as a pre-condition to e-service adoption is present.

#### *Trust in the electronic way of interaction*

The trust in electronic public services is based both on (1) the user's experience and (2) their perceived preference for using the electronic way of communication with the administration over the traditional way.

To reflect aspect (1), the respondents were asked whether they had fear to make financial transactions over the Internet. The distribution of the responses here was as follows:

- 62% were afraid of making such transactions;
- 34% were not afraid of that;
- 4% were not sure.

The answers to the question related to aspect (2) were as follows:

- 68% of the respondents would be ready to trust and to prefer the electronic way of interaction over the traditional way;
- 18% had difficulties in answering that question;
- 14% would not be ready to trust the electronic way.

From the perspective of these results, it can be stated that more than two thirds of the respondents were potentially ready to adopt the electronic way of interaction with

the administration, despite the fact that almost the same share of citizens was afraid of making financial transactions over the Internet. This means that the second pre-condition is also fulfilled.

#### *Motivation (perceived benefits)*

The final pre-condition is related to the expected benefits from usage of the electronic format for obtaining public services. In the survey the respondents were asked both about their knowledge of the advantages of the electronic format, and about their expectations to have higher chances for their problems to be solved by using this format.

For the knowledge of the advantages of electronic format, the fractions of the responses were as follows:

- 67% of the respondents were aware of the advantages of the electronic format;
- 16% were not aware of them;
- 17% had difficulties answering this question.

About their expectations to have higher chances for success with their claim when using the electronic format, the respondents provided the following answers:

- 65% of the respondents indeed expected an increase of their chances;
- 13% didn't expect such an increase;
- 22% had difficulties answering this question.

Overall, it can be stated that the surveyed people see substantial benefits in the electronic way of interaction with the local administration. Our preliminary findings on pre-conditions on public e-service adoption suggest that electronic way of interaction represent a perspective solution for enhancing the public value.

### **Empirical study results**

We applied the principal components analysis (PCA) the corresponding 5 variables (given in Table, Panel B) to reveal the latent structure of the attitudes of the citizens



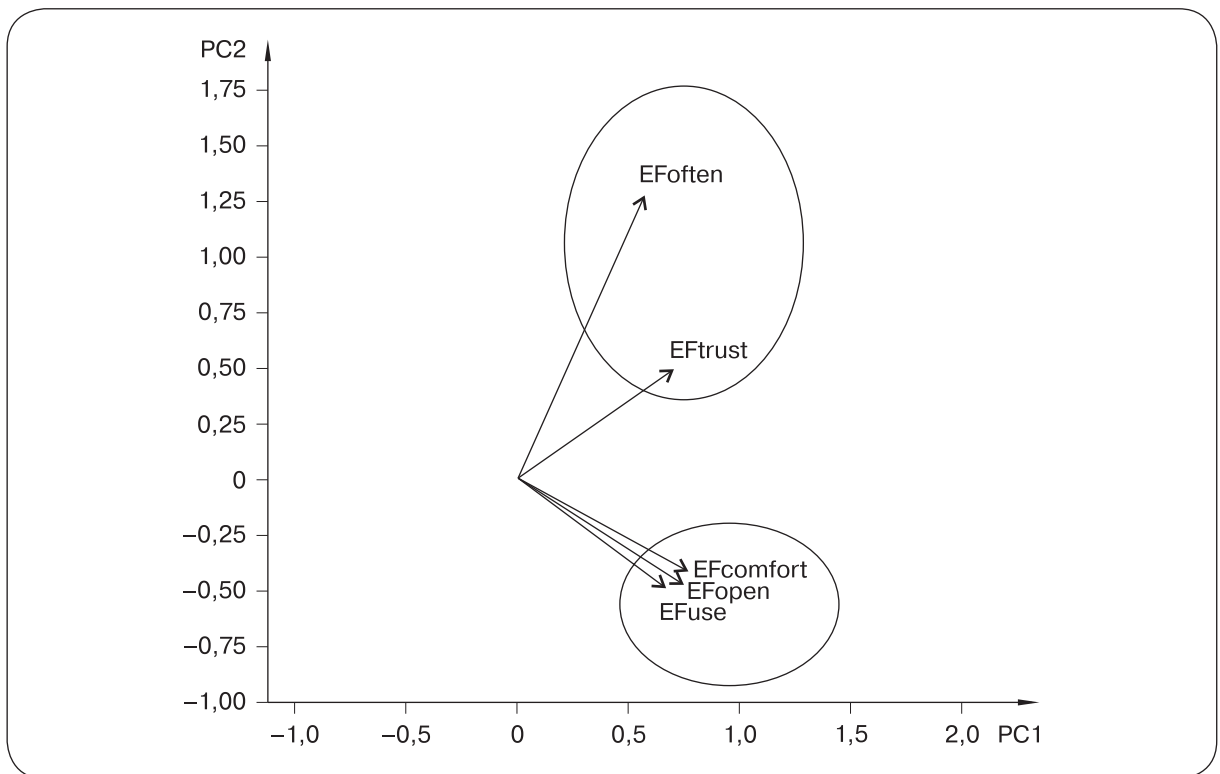


Fig. 5. Biplot of the principal components analysis

Based on: authors' calculations.

towards the electronic format of citizens' interaction with the administration. As a result, a *biplot* of the PCA was constructed (see Fig. 5).

In the graph, the projections of the original variables on the coordinate system of the two first principal components are presented. Interpreting the graph implies analyzing and matching directions of the projections. Matching directions indicate that the original variables are related.

Thus, Fig. 5 allows to indicate a number of peculiarities and to formally support or to disprove our research hypotheses.

Specifically, we found support to *Hypothesis 1*. Indeed, the intention to use the electronic format (variable EFuse) is co-directed with how convenient people feel about submission of their claims to the administration (variable EFcomfort). So, the more comfortable and user-friendly will be

the electronic way of claim submission, the more actively people will be ready to give information on landscaping problems in the district.

Surprisingly, *Hypothesis 2 was not supported* by the results. This is demonstrated by the fact that trust in administration's activity (variable EFtrust) and the expected greater openness of administration's activities (variable EFopen) have substantially different directions. This may indicate that for the elderly people trust in the local authorities is associated with factors, different from comfort and openness. They perceive the results of the authorities' activities, not just an improved (in terms of openness and comfort) process of claim submission. In order to increase their trust in administration, the authorities may need to show actual outcomes (specific results of their activity).

Finally, *Hypothesis 3 was supported* by our results. Indeed, the expected increase in trust (variable EFtrust) as a result of the electronic format adoption, goes along with the potential intention of people to submit their claims to the administration more often (variable EOften). So, growing trust in administration's activity should motivate people to submit their claims more actively.

### Robustness check

We also ran a robustness check on the obtained results in the following manner. Since the survey took four month (from April to July), we decided to take account of the fact in summer the local authorities traditionally intensify different landscaping and public amenities works. So, in our survey the respondents who were asked in "summer" months (June and July) could have seen the results of these works, and this could somehow make their answers more loyal.

So, we split the full sample into the "spring" part (for April and May) and the "summer" part (for June and July), and reran the full analysis (descriptive and PCA). The results for the two separate parts appeared to be virtually the same as for the whole sample, with Cronbach's alpha for the "spring" part of the survey being 0.92, and for the "summer" part — 0.91, and the two biplots reflecting the same location of the original variables on the PC coordinate system as in Fig. 5.

All this allowed us to make conclusion of stability and reliability of the obtained results.

## 5. CONCLUSIONS AND RECOMMENDATIONS

Our analysis allows making several principal conclusions.

First, it is definitely worth teaching the elderly people how to work with the new

ICT, since, as our analysis revealed, these people see the potential in employing the new (electronic) format of interaction with district's administration. So, public administrations may be advised to expand provision of free computer classes (e.g., in local libraries) to help the elderly people to work with new forms of claim submission and popularize the electronic format of communication.

Second, for local administrations it is important to continue improving the convenience of the electronic claim submission process, since people would be more loyal to the user-friendly electronic way of interaction. This may also influence the responsiveness of the administration itself, thus, increasing trust in the administration's activity.

Third, the administrations have to take into account that, as of now, in Russia the potential wider openness and transparency of the claim submission process due to switching to the electronic format is not directly correlated with trust in administration's activity for the group of elderly people. On the one hand, this may be a reflection of the fact that this group of people is quite unpretentious and are happy even just to be heard about their problems, without further monitoring of the problem solving process itself. They are more interested in the possibility to effectively submit a claim itself, as well as in the speed of administration's reaction. But, on the other hand, this may also indicate that to develop trust from the part of the older people, thus, further enhancing the public value, the administration should not only simplify the claim submission process, but also regularly show some actual results of its activity.

Our study on the example of a specific service and a certain category of the population shed light on the potential results of introduction of the electronic interaction, viewed through the prism of the public value concept. The study demonstrated the mechanism of the impact of electronic com-

munication on such sources of public value as service quality and trust. Further research should be focused more on studying the impact of the e-services development on such more complex and difficult-to-measure components such as public policy outcomes.

Overall, the obtained results may be used by local authorities to improve and enhance communication with the local aged population. Taking account of the findings of this research may increase the public value of the public service of landscaping and public amenities.

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## **Повышение общественной ценности предоставления местных государственных услуг посредством электронного взаимодействия**

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Электронные государственные услуги развиваются в различных сферах взаимодействия граждан с государственными органами, в связи с чем вопросы выгод от их внедрения широко обсуждаются в научной литературе. В последние годы применение комплексных подходов к оценке данных услуг стало особенно важным. Один из таких подходов представлен в рамках концепции общественной ценности, отражающей идею ценности, которую государство создает для общества. В настоящем исследовании теоретически иллюстрируется и эмпирически оценивается возможность повышения общественной ценности государственных услуг благодаря электронному формату взаимодействия граждан и власти на местном уровне, что демонстрируется на примере подачи гражданами в электронной форме заявлений по благоустройству местной территории. Исследование основано на 150 личных структурированных интервью с жителями старшего возраста одного из районов Санкт-Петербурга (Россия). Несмотря на то что эти граждане на самом деле не только готовы к новому (электронному) способу взаимодействия с местными властями, но и воспринимают его как более прозрачный и комфортный, сам по себе такой формат взаимодействия не повысит уровень доверия к властям и не заставит их чаще к нему обращаться. Для достижения этой цели местные власти должны демонстрировать реальные результаты своей работы. Статья вносит вклад в исследование связи между созданием общественной ценности и предоставлением электронных государственных услуг на местном уровне. Соответствующая теоретическая модель предлагает более глубокое понимание механизма повышения общественной ценности.

*Ключевые слова:* электронные госуслуги, концепция общественной ценности, услуги по благоустройству территории, факторный анализ.

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